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MEDIUM- SHORT-TERM AND REPETITION EFFECTS OF ADVERGAMES ON CHILDREN CONSUMER BEHAVIOUR

BOOKLET 1

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A Project carried out on the Marketing Field Lab of Children Consumer Behaviour, with the supervision of Professor Luísa Agante

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Abstract

The goal of this project is to understand whether advergames have short- and medium-term impact on children's preferences and choices for certain types of products and brands, and whether repeated exposure is significantly relevant in shaping these behaviours. Past literature has focused essentially on the immediate effects of single exposures to advergames, rather than on the medium- or long-term ones and therefore with this study we will reduce the existent gap in the literature. We used a sample of 104 children aged 6-9 years old divided into three groups. Our results confirmed the existence of all the expected effects, and thus exposure to advergames has immediate and medium-term effects on the child's preferences and choices of the brand depicted on the advergame and on that product category. We also concluded that repeated exposure to the advergame enhances all the effects on the brand, but not on the product category.

Keywords

Advergames; Children; Consumer Behaviour; Obesity

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1. Introduction

Nowadays, companies are facing a world of opportunities in what concerns digital media, and we can see a shift of Marketing Communications being made towards the Internet and its new potentialities. In fact, worldwide online advertising expenditure has exceeded $80 billion in 2011, and is expected to increase (Go Gulf, 2012).

This growth occurs as a response to several trends. First, Internet penetration rates are increasing: as of December 2011, 2.3 billion people were online (International Telecommunication Union, 2012), and Europe's Internet penetration rate was 61,3%, (Internet World Stats, 2012). Second, people are spending increasingly more time on the Web; and third, more and more households own Broadband Internet-Enabled Computers – 46% of the Portuguese households in 2009, compared to 19,7% in 2005 (Euromonitor International, 2010). All these conditions are giving an advantage to companies that have an Internet presence. Moreover, while adults are already used to surfing the Web, their children also become frequent users of this platform. In fact, about 70% of Americans aged 8 to 18 years old visit the web everyday (Rideout, Foehr, & Roberts, 2010). As a result, companies began to create what is known as Advergames, online videogames created to promote a brand or its products, allowing them to be face-to-face with customers, anytime, anywhere. As this far-reaching media combines children's love for videogames, urge of entertainment and fun, and allows for interaction between them and the brand, it seems a great path to follow, especially considering its lower costs and fewer regulations when compared, for instance, with television advertisements (Pempek & Calvert, 2009). Moreover, a growing trend that the world is now facing, according to the World Health Organization, is childhood obesity, as "more than 40 million children under the age of five were overweight in

2010" (WHO, 2012). Thus, if it can be proved that these games are able to influence children's short- and medium-term behaviours, these media might actually be a useful tool to tackle childhood obesity through promoting healthy lifestyles.

The purpose of this project, then, is to, on the one hand, reduce the existent gap of the literature concerning the medium-term effects of advergames on children's consumer behaviour, and, on the other hand, understand if repeated exposure to these games is significantly relevant in shaping children's behaviours.

2. Literature Review

2.1 Advertising's Persuasive Intent and Childhood Obesity

As previous literature suggests, children constitute a very important target segment for many reasons: they are able to influence parents' purchases through requests (Ward & Wackman, 1972; McNeal, 1992); children are receiving increasingly greater allowances by their parents and caretakers (McNeal, 1992); and they are tomorrow's customers (McNeal, 1992), as brand loyalty achieved at young ages is more likely to be sustained through adulthood (Euromonitor International, 2010). In this sense, companies start to direct marketing efforts to them at very early ages, which some argue as inappropriate, as children are often unaware of advertising's persuasive intent given their limited cognitive development (John, 1999).

In fact, there seems to be a relationship between children's stage of cognitive development, advertising content and follow-up behaviours, namely in what concerns food products. A study from Goldberg, Gorn and Gibson (1978) revealed that first graders' food choices reflected the content of the television commercials to which they had been exposed. With results such as these, it becomes obvious why such concerns

exist: if childhood obesity can be linked to advertising, it is imperative that something is done, especially nowadays, when, on the one hand, children are constantly exposed to marketing communications (Moore, 2006), and, on the other hand, obesity rates are overwhelming – as the World Health Organization states, "The trend in obesity is especially alarming in children and adolescents (…) and the current rate is 10 times that in the 1970s" (WHO, 2007: 1).

2.2 Advergames

Children are avid learners who seek for fun and entertainment everywhere – and the Web is no exception. In fact, the proportion of children who frequently use the Internet is constantly increasing, as well as the importance given to that activity: 87% of the European children use the Internet at home, and 63% do it at school (EU Kids Online Network, 2011). In addition, from the European 9-16 year old Internet users, 60% go online, on average, 88 minutes per day, everyday (EU Kids Online Network, 2011). This constitutes a great opportunity for companies with an online presence, which encourages the creation of pages with contents targeted at these consumers (Staiano & Calvert, 2012). An example of such contents is what we now call advergames. These interactive media combine advertising and videogames in a way that challenges customers and promotes a brand, aiming to get higher levels of brand awareness, recognition, loyalty, improved image and, obviously, sales, through repetitive brand exposure. Moreover, compared to what happens with television commercials, the improved interaction and engagement associated with advergames are likely to lead to better results, as customers are actively exposed to these contents for fairly unlimited time (Staiano & Calvert, 2012; Mallinckrodt & Mizerski, 2007; Nelson, 2002). In fact, the effectiveness of longer, engaging media directed to children was confirmed by

Goldberg and his colleagues (1978) through one of their studies, in which children's preferences for highly sugared snacks and breakfast foods were reduced after being exposed to a program that suggested healthier eating habits by means of animation and comedy. As such, advergames can also be used to encourage healthier eating behaviours and lifestyles among children, in a way that aims to fight childhood obesity and overweight.

2.3 Short-Term vs. Medium-Term

The literature presents no consensus concerning the time frame that defines short-, medium- and long-term. In fact, some authors consider short-term effects to occur immediately after exposure to a stimulus (Goldberg & Gorn, 1978), while others define them as the responses measured within a week after exposure (Mela, Gupta, & Lehmann, 1997), or even up to 30 days later (Hansen & Christensen, 2007). Likewise, medium and long-term effects are defined differently depending on the authors who study them. For some, medium-term includes any responses within 13 weeks after exposure to a stimulus (Mela, Gupta, & Lehmann, 1997), while for others, medium-term effects can be measured up to one year later (Hansen & Christensen, 2007). For Nelson (2002), on the other hand, a five-months period is already considered to be long-term.

3. Hypotheses

Advertising – be it printed on a magazine or an outdoor, broadcasted on television as commercials, or over the web – is expected to influence people, by changing either their preferences, choices, or attitudes towards a brand or product (Resnik & Stern, 1977).

Although this influence is generally observable on adults, it is on young children that it is the most notorious. In fact, this goes in line with Piaget's work (Greig, Taylor, & MacKay, 2007), as it seems that it is not until children approach the *Formal Operations* stage (12 years onwards) that they are able to critically interpret the information received (Resnik & Stern, 1977). This fact is especially noticeable concerning online advertising, as the line between advertising and entertainment is often blurred (Mason, 2011). It is under this assumption that media, and in particular advergames, can be used to change children's eating habits.

3.1 Food Preferences

It has been reported in several studies that children's exposure to television commercials increases their preferences for the advertised products (Goldberg & Gorn, 1978), and, these preferences, by directly reflecting what is being broadcasted, can shape future behaviours (Mallinckrodt & Mizerski, 2007) through non-conscious means that are impossible to resist (Nairn & Fine, 2008). Moreover, as the authors of one of these studies state, this influence is observable with a single exposure (Goldberg & Gorn, 1978).

In tune with what has been discovered with television advertising studies, there is also evidence that suggests advergames can shape children's preferences. Mallinckrodt and Mizerski (2007) report that significantly more children exposed to the Froot Loops' advergame in their study preferred this to other cereal options (65% compared to only 35% of the children from the control group), and this type of food (breakfast cereal) to other categories of food (54% of the children who played the advergame compared to only 32% of the children from the control group).

As such, the following hypotheses are considered:

H1: The advergame has a positive impact on children's preferences for (a) the type of food (category) advertised and (b) the brand advertised.

3.2 Snack Selection

Besides shaping preferences, advertising is also expected to influence children's choices and requests of a certain product (Goldberg & Gorn, 1978) or brand (Resnik & Stern, 1977). In one of their studies, Goldberg, Gorn and Gibson (1978) found that children exposed to commercials that promoted highly sugared foods tended to request more of these products, while children who watched advertisements of healthier snacks generally chose more nourishing ones. Another experiment conducted by Gorn and Goldberg over a two-week period led to similar findings, as "Children who viewed candy commercials picked significantly more candy over fruit as snacks" (Gorn & Goldberg, 1982: 200), while "children in the fruit condition (exposed to orange juice commercials) selected the most orange juice" (Gorn & Goldberg, 1982:. 203).

A study conducted on 30 children with ages in between 9 and 10 years old also suggested that advergames influenced their consumption patterns, as "Children who played the healthier version of the advergame selected and ate significantly more healthy snacks than did those who played the less healthy version" (Pempek & Calvert, 2009: 633). In fact, the same was confirmed in a similar study with 231 second and third graders (Dias & Agante, 2011).

Then, the following is hypothesized:

H2: The advergame has a positive impact on children's snack selection for (a) the type of food advertised (category) and (b) the brand advertised.

3.3 Medium-Term Effects

Some evidence suggests that advergames' effects might not occur solely on the short-term. In fact, Nelson's research (2002) on adults showed that, in a first experiment, 7 out of 10 participants still recalled at least one brand to which they had been exposed, five months earlier, in *Gran Turismo 2*, a car-racing game (Nelson, 2002); and, in another experiment, with a yet to be released game that featured unfamiliar brands, up to 15% of the brands were recalled five months after the gameplay, compared to 30% recorded immediately after the exposure (Mallinckrodt & Mizerski, 2007).

Considering this, the following is hypothesized:

H3: The advergame has a positive impact on children's medium-term (a) preferences and (b) snack choices.

3.4 Repeated Exposure

Some studies performed with half-hour television programs showed no effects attributable to repeated exposure (Mallinckrodt & Mizerski, 2007). Goldberg and Gorn (1978) argue that this might be due to the fact that a single contact with the ad is sufficient to generate significant effects. Moreover, in the case of television, repetition might simply suggest boredom and decrease in liking (Goldberg & Gorn, 1978). However, additional findings contradict this: in fact, another study performed by Gorn and Goldberg suggested that daily exposure to a commercial over a two-week period was more effective in "maintaining the product's salience" (Gorn & Goldberg, 1982: 204). Also, an experiment involving product placements in movies suggested that children benefit from repetition of "natural" product placements – something that goes in line with previous findings (Auty & Lewis, 2004).

Considering the fact that, unlike television, playing an advergame involves active participation from the person, the following is hypothesized:

H4: Repeated exposure to an advergame has a higher impact on children's (a) preferences and (b) snack choices than single time exposures.

4. Method

Due to the experimental nature of this research, we used a convenience sample of children aged 6-9 years and attending the 2nd, 3rd and 4th grades of Elementary School. We used a big school from an urban area, with a huge diversity in terms of social backgrounds. The final sample was composed of 104 children equally divided by gender (47,1% boys/52,9% girls) and grade (37,5% 2nd graders, 29,8% 3rd graders, 32,7% 4th graders). Regarding parents education, 55,2% of the parents had a degree of certain type, being this percentage similar on all groups.

In order to collect data and test for the hypotheses paper questionnaires were used. The choice of these tools seems appropriate, as concrete operational children as the ones from this sample (John, 1999) can easily read and answer simple questionnaires. In fact, questionnaires are one of the most common tools used by researchers, due to its ease of administration and fairly simple analysis (Greig, Taylor, & MacKay, 2007). In order to better address children's skills and preferences, the questionnaires comprised several visual cues, as it is proved that children prefer this type of information rather than verbal measures (Donohue, Henke, & Donohue, 1980).

We respected all ethical guidelines regarding research with children (Schenk & Williamson, 2005) by sending authorization requests both to the Portuguese Authorities on Education and the children's parents, so that the investigation could be validated and

only those with previous authorization would take part on the study (Shaw, Brady, & Davey, 2011). In addition, a Psychologist and an elementary school Teacher were contacted to ensure that the questions posed were appropriate and easily understood by the students. Furthermore, a pre-test was performed with children of the targeted age, to make sure the questionnaires were sufficiently engaging and comprehensible, and the appropriate changes were made. Also, before starting to answer the questionnaire, besides explaining all procedures and implications of their participation, all children were ensured of total confidentiality and allowed to quit the experiment at any time.

Children were divided into three fairly homogeneous groups (we compared the demographics and parents educations of the three groups and there were no significant differences between groups): a control group and two experimental groups. The control group was asked to answer a simple questionnaire, whereas the experimental groups played an advergame and answered the same questionnaire immediately after gameplay (plus some extra questions concerning the game). Furthermore, children in the first experimental group answered a second questionnaire one week after playing the game; and, children in the second experimental group played the same advergame during five consecutive days, and answered the second questionnaire (equal to the one presented to the first experimental group) after the last gameplay. Thus, for the purpose of this research, short-term consists of immediate responses, while medium-term effects comprise a time interval of one week after exposure to the stimulus. In fact, due to the time constraint of this research and considering its exploratory facet, this seems the appropriate time frame to use, as it also allows for comparisons between both Experimental Groups.

4.1 Stimulus

The advergame selected was Pringles' Flavour Grab, which starts with "a Pringles can bursting open and releasing its pent-up flavour back into the world at large" (Pringles, 2012). In this game, the player has to recapture seasonings and ingredients (e.g. salt, ketchup, and Pringles) in order to proceed to the next level.

Young children are used to play games in the computer. In fact, children who surf on the Web always start to use this media for schoolwork and to play games (EU Kids Online Network, 2011). Even so, an elementary school teacher was contacted and a pre-test with 5 children from the age range of the research was conducted to ensure suitability and general understanding of the game. From this, it was concluded that children had no problem understanding or playing the game. Besides, all of them stated they either "liked" or "loved" the game. After conducting the pre-test and making sure everything was adjusted, we collected the primary data.

4.2 Measures

As denoted earlier, this investigation aims to understand: 1) if short- and medium-term effects of advergames are noticeable on children consumer behaviours; and 2) if repeated exposure to advergames leads to stronger results than one-time exposures. For this, three analyses were performed in order to measure product and brand preferences, as well as children's snack choices. Game liking and Internet usage were also evaluated, to ensure that the game was appropriate for this target, and to have a sense of children's playing behaviour.

4.2.1 Short-Term Effects

To evaluate the potential effect of the advergame on children's product and brand preferences (H1), a method similar to the one used by Mallinckrodt and Mizerski (2007) was employed. As such, children were first asked to select their favourite brand from three popular brands of chips sold in Portugal (Ruffles, Pringles, and Lay's). These brands were chosen because they are the most important in the category, in Portugal (Marques, 2008; Hostel Vending, 2012), being Lay's the current market leader in the country (PepsiCo). Then, children were asked to choose their preferred product among different categories: a hamburger, chips (using Pringles image but without exhibiting the brand or the can), and a plate of jelly were shown. These products were selected following the procedure used by Dias and Agante (2011), and Mallinckrodt and Mizerski (2007), and because children are familiar with them. In both questions, pictures were used to ensure children recognized the products and/or brands (Appendix 7). Also, a Likert scale was used, along with smiley faces, when asking children how much they liked Pringles (Cooke & Wardle, 2005) with the options of "Do not know them", "Hate them", "Do not like them", "Like them", "Love them".

Similarly, to evaluate children's snack selection (H2), they were asked to choose the snack they would like to eat in that specific moment, from a total of three snacks of different categories (a cheese and ham toast, chips, and a fruit salad) (Mallinckrodt & Mizerski, 2007). As for evaluating children's requests, the same method was used when asking children to select the brand of chips they would ask their parents to eat/buy (Mallinckrodt & Mizerski, 2007).

Following Pempek and Calvert's experiment (2009), children were also asked how often they used the Internet ("Everyday"; "Several times per week"; "Once a week"; "I

don't use the Internet"), and what for ("To talk with my friends"; "For schoolwork"; "To play games"; "To send e-mails"; "To visit a website of a TV show I watch"; "To visit a website of foods I like"). Moreover, children in the experimental groups were asked if they liked the game and whether it was easy or hard for them to play, following the procedures used by Mallinckrodt and Mizerski (2007) and Pempek and Calvert (2009).

4.2.2 Medium-Term Effects

To evaluate medium-term effects of exposure to the advergame (H3), the first experimental group played the advergame only once and was asked to answer another questionnaire one week after gameplay. This aimed to evaluate children's snack choices and preferences for chips and salty snacks. For this, a four-point Likert scale was used, along with smiley faces, when asking children how much they liked chips and fries (Cooke & Wardle, 2005), and questions similar to the ones presented in the first survey were asked. This time, to evaluate product and brand preferences (H3a), children were asked to select the type of food they liked the most from the three different categories pictured (chocolate chip cookies, chips, and fruit) (Dias & Agante, 2011), and their favourite brand of salty snacks from a picture of 3 different brands (Ruffles, Pringles, and Lay's). As to evaluate snack choices and selection (H3b), children were asked to select the one product they would like to eat between apple, chips and toast (Dias & Agante, 2011), and which brand of chips they would ask their parents to buy. Once again, all these were formulated following closely Mallinckrodt and Mizerski's method (2007) (Appendix 9).

4.2.3 Repeated Exposure

As for measuring the effects of repeated exposure, the second experimental group played the same advergame everyday for a week. This daily repetition tries, in part, to replicate Gorn and Goldberg's study (1982), adapted to the time constraints faced and to the media in question. Afterwards, this group was also asked to answer another survey (equal to the one presented to the first experimental group).

5. Findings

5.1 Short-term Preferences

As previously explained, children had to select, among three possible choices, their preferred brand and product. This was done either for the Control Group or, after playing the advergame, for both Experimental Groups. It was hypothesized that children's preferences would tend to reflect the content of the game. And in fact, regarding brand preference, a greater percentage of children in the Experimental Groups chose "Pringles" as their favourite brand of chips (50,0% against 23,5% in the Control Group), being this difference significant ($\chi^2 = 15{,}026; p = 0{,}001$). Regarding product category, a higher percentage of children exposed to the advergame reported "chips" as their preferred snack (30,0% compared to 11,8% in the Control Group), with this difference being also significant ($\chi^2 = 6{,}714; p = 0{,}035$). As a consequence, there is sufficient evidence to accept H1, i.e., the advergame seems to have an immediate and positive impact on children's preferences for both the brand and the product advertised.

5.2 Short-term Snack Selection

On another task in the questionnaire children had to select the brand of chips and the type of food they would like to eat at that time. This aimed to show that the advergame

had a positive impact on children's snack selection. Once again, compared to the Control Group, the Experimental Groups chose more often "Pringles" (58,6% compared to 20,6%) and "chips" (34,3% compared to 11,8%). As such, the advergame seems to influence children's short-term snack choices as well as brand preferences. These differences were also significant both for brand ($\chi^2 = 15{,}249; p = 0{,}000$) and for product selection ($\chi^2 = 6{,}156; p = 0{,}046$). As such, there is sufficient evidence to accept H2.

5.3 Medium-term Effects

The third hypothesis suggests that one exposure to the advergame produces a medium-term impact on children's preferences and snack choices. To evaluate this, we compared the answers of the first Experimental Group on the second questionnaire, with the ones of the Control Group. From this, it is possible to see that, one week after exposure to the stimulus, children in the first Experimental Group tend to prefer "Pringles" more than those in the Control Group (55,6% compared to 23,5%), and that this difference is significant ($\chi^2 = 8{,}474; p = 0{,}014$). The same happens with product preferences, as more children in the first Experimental prefer "Chips" (41,7% compared to 11,8%), with this difference also being statistically significant ($\chi^2 = 9{,}023; p = 0{,}011$). Moreover, considerably more children in the first Experimental Group chose "Pringles" (63,9% compared to 20,6%) and "Chips" (38,9% compared to 11,8%), and both of these are statistically significant ($\chi^2 = 13{,}660; p = 0{,}001$ and $\chi^2 = 6{,}739; p = 0{,}034$, respectively).

Furthermore, we analysed if there were differences between the first and second measurements on this Experimental Group. In fact, in the second moment, more

children reported they preferred “Pringles” (55,6% compared to 50,0%) and “chips” (41,7% instead of 27,8%). As for snack choices, though the proportion of children who would choose to eat “chips” at that specific time slightly increased (from 33,3% to 38,9%), the number of children who would select “Pringles” was the same as before (63,9%). With this in mind, the advergame’s medium-term impact in preferences after a single exposure seems to be stronger among categories, rather than brands. To test if these differences were significant, several χ^2 tests were conducted. However, all the p-values were over 25%, and, as a consequence, none of these differences is statistically significant. In any case, it is important to note that none of these percentages decreased and is still significantly higher than those from the Control Group.

As such, there is sufficient evidence to accept H3, as both Brand and Product Preferences and Brand and Product Choices seem to be greater in the first Experimental Group, one week after exposure to the stimulus, when compared to the Control Group, and to be similar to the ones obtained immediately after the exposure.

5.4 Repeated Exposure

The forth hypothesis postulates that repeated exposure to the advergame produces stronger effects than a single exposure, and that this is true for both children’s preferences and snack choices. To assess this, children in the second Experimental Group played the advergame for five minutes, during five consecutive days, and answered two questionnaires, one after the first exposure and a second one after the fifth exposure. Comparing the results of the second questionnaire with the first questionnaire, our analysis shows that children in the second Experimental Group reported higher preferences for “Pringles” on the fifth day (79,4% compared to 50,0%

on the first day) and also for "chips" (58,8% compared to 32,4% on the first day). Nevertheless, only the difference on the brand preference proved to be significant ($\chi^2 = 6{,}495; p = 0{,}03$) while for the product category preference it was not significant on a 5% significance level ($\chi^2 = 5{,}196; p = 0{,}074$) although it was at a 10% significance level. Regarding children's choices we observed the same type of tendency. Children stated that they would choose more "Pringles" on the fifth day (85,3% compared to 52,9% on the first day) and that they would choose more to eat chips (47,1% compared to 35,3% on the first day), but only the difference in brand choice proved to be significant ($\chi^2 = 8{,}374; p = 0{,}015$), with the product category selection being non-significant ($\chi^2 = 2{,}085; p = 0{,}352$). From that, it is possible to conclude that only brand preferences and brand selection are associated with the repetition of the stimulus. This means we can only accept H4 for what concerns the brand itself; for product preferences and selection, H4 is rejected. Nevertheless, it is important to note that although product preference and selection did not increase significantly, they did not decrease either, and continued to be greater than those reported by children in the Control Group, which means there is no "boredom" effect of repetition.

Moreover, we compared the short-term effects for the children in both Experimental Groups. For that, we compared both groups' answers of the first questionnaire. In fact, concerning brand preferences, 50% of children in each group selected "Pringles" as their favourite brand of chips ($\chi^2 = 0{,}257; p = 0{,}879$). As for product preferences, 32,4% of children in the second Experimental Group chose "Chips" as their favourite snack, compared to 27,8% in the first Experimental Group, but this difference is not significant ($\chi^2 = 3{,}694; p = 0{,}158$). Following, 52,9% of children in the second Experimental Group chose to eat "Pringles" compared to 63,9% of children in the first

Experimental Group, but this difference is not significant either ($\chi^2 = 0{,}982; p = 0{,}612$). Finally, concerning product selection, 35,3% of children in the second Experimental Group chose "Chips", compared to 33,3% in the first Experimental Group, but this difference is not statistically significant ($\chi^2 = 0{,}351; p = 0{,}839$). As such, this means that the short-term effects were the same for both Experimental Groups.

6. Discussion

6.1 Short-term Effects

Results show that children's short-term preferences and consumption patterns (snack selection) tend to reflect the advertising content of the game. This is consistent with previous studies of advergames (Staiano & Calvert, 2012; Dias & Agante, 2011; Pempek & Calvert, 2009; Mallinckrodt & Mizerski, 2007). This positive attitude towards the brand and product category might be due to the interactive, fun and engaging nature of the advergame. In fact, these characteristics disguise the persuasive intent of the game, making children more vulnerable (Nairn & Dew, 2007) and incapable of building a rational defence against the advertised message (Staiano & Calvert, 2012).

6.2 Medium-term Effects

Our findings suggest that a single 5-minutes exposure to the advergame is sufficient to significantly alter children's brand and product attitude over the medium-term, which supports Nelson's results (2002) on the influence of games in adults. Nonetheless, this

seems to contradict the fact that children in early stages of cognitive development have trouble recalling brands and products (John, 1999).

6.3 Repeated Exposure

Our findings suggest that there is an association between repeated exposure and both brand preference and selection. However, the same does not happen for product category. This somehow reflects the lack of consensus attributed to the effects of repeated exposure in previous literature. The fact that, unlike Pringle's logo, not every level of the game presents chips (but ketchup or salt instead) might justify why repeated exposure to the game does not alter significantly children's preferences for, neither selection of, chips. Plus, as suggested by Goldberg and Gorn (1978), a single exposure to the stimulus is effective in shaping these behaviours.

7. Conclusions

Internet's proliferation and the advances in technology led to the propagation of online marketing contents such as advergames. Similar to previous literature, the present study was able to verify immediate changes in children's food preferences and behaviours attributable to exposure to an advergame. Moreover, it was possible to identify medium-term effects of a single exposure, thus reducing the gap in the literature. Furthermore, it was proved that repeated exposure to an advergame is successful in maintaining brand salience in children's minds and influencing their behaviours in the short-term.

With these findings in mind, and as digital gaming by children keeps increasing, concerns about childhood obesity and unhealthy food promotion through advergames are justifiable. However, these same findings might also enable a behavioural change. In

fact, it seems that companies can promote healthier eating habits through fun, engaging web content, thus improving their CSR policies, while benefiting from brand exposure. Furthermore, through the collection of passwords that unlock secret contents of the game, marketers can create a direct link between children's product consumption and online experience. Moreover, as some consequences of exposure to an advergame are still unknown, policy makers might also need to revise some web promotion regulations to prevent the matter from worsening. This might include advertising restrictions such as age limits, or simply clarification of existing rules.

8. Limitations & Insights for Further Research

One limitation this study faced was the reduced sample size: each subgroup had no more than 36 students, which means these conclusions should be analysed with care. In addition, although the sample used comprised several different social and economical backgrounds, it could be interesting to replicate this study among different schools, to further generalize possible conclusions.

Another interesting extension would be to assess long-term impacts of the advergame. In fact, we observed that with only a single exposure the effect remained after one week, and we don't know if this effect will disappear after a certain amount of time, and how much will be that amount of time. Furthermore, this study focused on children between 6 and 9 years old. It might also be relevant to assess other stages of cognitive development, as different conclusions might arise.

Finally, this study only used one food-promoting advergame. It is possible that different results arise from other types of advergames, and for that reason, this study should not, by all means, constraint future research.

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A Work Project presented as part of the requirements for the Award of a Masters Degree in Management from the NOVA – School of Business and Economics

MEDIUM- SHORT-TERM AND REPETITION EFFECTS OF ADVERGAMES ON CHILDREN CONSUMER BEHAVIOUR

BOOKLET 2: APPENDICES

ANA CAROLINA SANTOS PASCOAL, #889

A Project carried out on the Marketing Field Lab of Children Consumer Behaviour, with the supervision of Professor Luísa Agante

January 7th, 2013

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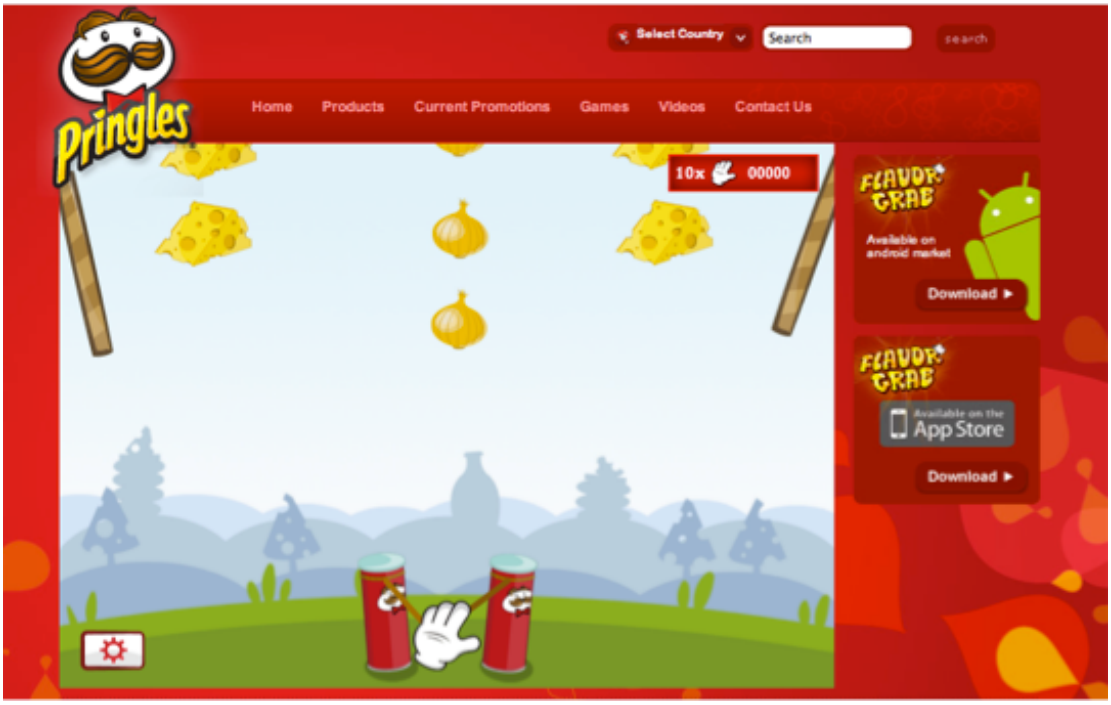
Appendix 1: Pringles' Flavour Grab Advergame



Screenshots from Pringles' Flavour Grab available at http://www.pringles.pt/Flavor-Grab

Appendix 2: Pringles' Consent Letter

Ana Pascoal <acspascoal@gmail.com>

Consumer Affairs 026365542A
1 message

PringlesUk@cpm-int.com <PringlesUk@cpm-int.com> Wed, Dec 5, 2012 at 4:58 PM
To: acspascoal@gmail.com

Dear Miss Pascoal,

Thank you for contacting the Kellogg's company regarding your request for information from Pringles.

Having considered the request, we feel that if you use the game's image for non-commercial subjects there is no problem you using it.

In regard to your question about the target segment of the game, then we can inform you that this is kids in general.

Once again thank you for your interest and for the time you have taken to contact us on behalf of Pringles, we wish you every success for the future.

Yours sincerely,

Jeroen Rottier
Pringles Consumer Support
Ref. No : P026365542A

Appendix 3: Education's Authority Consent Letter

Ana Pascoal <acspascoal@gmail.com>

Monotorização de Inquéritos em Meio Escolar: Inquérito nº 0341400001
1 message

---

mime-noreply@gepe.min-edu.pt <mime-noreply@gepe.min-edu.pt>
To: acspascoal@gmail.com

Wed, Nov 28, 2012 at 11:39 AM

Exmo(a)s. Sr(a)s.

O pedido de autorização do inquérito n.º 0341400001, com a designação *Efeitos de Médio- e Curto-Prazo de Advergames nos Comportamentos de Consumo das Crianças*, registado em 06-11-2012, foi aprovado.

Avaliação do inquérito:

> Exmo(a) Senhor(a) Dr(a)Ana Pascoal
> Venho por este meio informar que o pedido de realização de inquérito em meio escolar é autorizado uma vez que, submetido a análise, cumpre os requisitos de qualidade técnica e metodológica para tal devendo, no entanto, ter em atenção as observações aduzidas
> Com os melhores cumprimentos
> José Vitor Pedroso
> Diretor de Serviços de Projetos Educativos
> DGE

Observações:

> a) A realização do Inquérito fica sujeita a autorização prévia da Direcção do Agrupamento/Escola.
> b) Deverá ser obtida a autorização dos encarregados de educação dos alunos a inquirir. As autorizações assinadas pelos EE devem ficar em poder da Escola à qual pertencem os alunos.
> c) No cruzamento da informação entre o questionário do encarregado de educação e o questionário do aluno, este nunca deve ser identificado. Assim, como em momento podem algum identificar os inquiridos, os alunos só podem ser identificadas por um código de participante. A codificação deve ser destruída um mês após o fim do estudo

Pode consultar na Internet toda a informação referente a este pedido no endereço http://mime.gepe.min-edu.pt. Para tal terá de se autenticar fornecendo os dados de acesso da entidade.

Appendix 4: School's Authorization Letter

Exma. Sra. Directora,

Sou aluna de mestrado de Gestão na Faculdade de Economia da Universidade Nova de Lisboa, e estou a realizar um estudo que diz respeito ao Marketing Infantil denominado "Medium- and Short-Term Effects of Advergames on Children Consumer Behavior" ("Efeitos de Médio- e Curto-Prazo de *Advergames* nos Comportamentos de Consumo das Crianças").

O objectivo do meu estudo é aprofundar as descobertas que se têm vindo a realizar nesta área de investigação, e confirmar se as crianças são influenciadas por *Advergames* (jogos online criados para promover produtos ou marcas), nomeadamente, se os seus hábitos de consumo se alteram consoante o tempo de exposição a um jogo deste tipo. Se estes jogos se provarem eficazes, será então possível, de futuro, abordar o tema da obesidade infantil, promovendo hábitos saudáveis de uma forma dinâmica e atractiva para as crianças.

Este estudo realiza-se em duas fases: primeiramente, é enviada uma carta aos pais, juntamente com um pequeno questionário que estes devem preencher caso autorizem os seus filhos a participar no estudo (as crianças levam para casa e os pais preenchem em casa); e, de seguida, com as crianças que tiverem autorização, é realizado um jogo e um questionário na escola (ver documentos em anexo), os quais demoram, no máximo, 30 minutos.

Todas as folhas de ambos os questionários são entregues na escola e as fotocópias são previamente tiradas por mim, pelo que a escola não tem qualquer trabalho nem encargo com o formulários dos questionários. O preenchimento destes decorrerá conforme a política da escola e, se possível, será coordenado por mim, na presença do professor da turma.

Penso que estão indicadas todas as informações necessárias mas, caso necessite de algo mais, não hesite em contactar.

Com os melhores cumprimentos,

Ana Pascoal

Appendix 5: Parents' Authorization Letter

Ana Pascoal, Aluna de Mestrado
NOVA School of Business and Economics
Campus de Campolide
1099-032 Lisboa

Assunto: Pedido de autorização para participação em estudo sobre alimentação e jogos online

Exmo.(a) Sr(a). Encarregado(a) de Educação,

Sou aluna de mestrado de Gestão da Universidade Nova de Lisboa, e estou a realizar a minha investigação na área de comportamento do consumidor infantil. Para esse efeito, estou a levar a cabo um estudo sobre alimentação e jogos online, para o qual necessitava que o seu educando preenchesse um questionário na escola. Para além disso, pedia-lhe também que o(a) Sr(a). me respondesse a um breve questionário e o devolvesse na escola juntamente com esta folha de autorização assinada (por favor não separe as folhas e entregue-as ao professor do seu educando).
Os dados recolhidos serão analisados por mim e a sua confidencialidade é total, sendo apenas divulgados os resultados da investigação, sem a referência aos dados dos alunos, e sem a identificação das escolas onde o estudo foi realizado. Os resultados do estudo poderão também ser apresentados em conferências, artigos/livros ou notícias relacionadas com o tema, e serão enviados para as escolas que participarem no estudo, podendo ser consultados por todos os encarregados de educação que assim o desejarem.

Com os melhores cumprimentos,

Ana Pascoal

Autorizo o meu educando, _____, do ___º ano, turma _____ a participar neste estudo.

_____, ___ de _____, de 2012

Assinatura do Encarregado de Educação:

_____

Appendix 6: Parents' Questionnaires

Questionário

1. Escolaridade e Ocupação dos Pais

1.1. Assinale o nível de escolaridade que cada um dos pais possui, colocando uma cruz na opção correcta. Deverá escolher o maior nível de escolaridade que possui.

	Sem estudos ou primária incompleta	Primária (4ª classe)	Ensino básico (9º ano)	Ensino secundário (12º ano)	Licenciatura ou Bacharelato	Estudos Pós-Graduados
Pai						
Mãe						

1.2. Por favor indique a ocupação ou profissão dos pais.

Ocupação do Pai: _____

Ocupação da Mãe: _____

2. Hábitos Alimentares

2.1 Em média, quantas vezes por dia é que o seu educando come...

	0	**1**	**2**	**3**	**+3**
Fruta					
Vegetais					

2.2 Em média, quantas vezes por semana é que o seu educando come *Fast-Food*?

	0	**1**	**2**	**3**	**+3**
Fast-Food					

(continua na próxima página)

3. Internet

3.1. Dispõe de ligação à Internet em casa?

☐ Sim ☐ Não

3.2. Em média, quantas horas por dia, é que o seu educando navega na Internet?

	0	**1**	**2**	**3**	**+3**
Dias de Semana					
Fins-de-semana					

3.3. Em média, quantas horas por dia, é que o seu educando joga na Internet?

	0	**1**	**2**	**3**	**+3**
Dias de Semana					
Fins-de-semana					

Obrigada pela colaboração!

Appendix 7: Control Group's Questionnaire

Preenche a informação em falta e indica o teu sexo colocando um X na opção correcta.

Sou: ____ Rapaz ____ Rapariga

Tenho ____ anos e ando no ____º ano.

1. Tu e a Alimentação

1.1 Marca com um X o que gostas mais:

☐

☐

☐

1.2. Marca com um X o alimento que mais gostas de comer:

☐

☐

☐

1.3. Marca com um X o alimento que mais te apetece comer agora:



☐ ☐ ☐

1.4. Gostas de Pringles?


Não conheço ☐


Detesto ☐


Não gosto ☐


Gosto ☐


Adoro ☐

1.5. Qual destes produtos gostavas de pedir aos teus pais? (marca uma opção)

☐

☐

☐

2. Tu e a Internet

2.1. Costumo utilizar a Internet... (marca uma opção)

☐ Todos os dias

☐ Várias vezes por semana

☐ Uma vez por semana

☐ Não uso a Internet

2.2. Utilizo a Internet para... (podes marcar mais do que uma opção)

☐ Falar com os meus amigos

☐ Fazer trabalhos para a escola

☐ Jogar jogos

☐ Enviar e-mails

☐ Visitar sites de desenhos animados que gosto de ver

☐ Visitar sites de comidas que gosto

Appendix 8: Experimental Groups' First Questionnaire

Preenche a informação em falta e indica o teu sexo colocando um X na opção correcta.

Sou: ____ Rapaz ____ Rapariga

Tenho ____ anos e ando no ____º ano.

1. Tu e a Alimentação

1.1 Marca com um X o que gostas mais:

☐

☐

☐

1.2. Marca com um X o alimento que mais gostas de comer:

☐

☐

☐

1.3. Marca com um X o alimento que mais te apetece comer agora:


☐


☐


☐

1.4. Gostas de Pringles?


Não conheço ☐


Detesto ☐


Não gosto ☐


Gosto ☐


Adoro ☐

1.5. Qual destes produtos gostavas de pedir aos teus pais? (marca uma opção)

☐

☐

☐

2. Tu e a Internet

2.1. Costumo utilizar a Internet... (marca uma opção)

☐ Todos os dias

☐ Várias vezes por semana

☐ Uma vez por semana

☐ Não uso a Internet

2.2. Utilizo a Internet para... (podes marcar mais do que uma opção)

☐ Falar com os meus amigos

☐ Fazer trabalhos para a escola

☐ Jogar jogos

☐ Enviar e-mails

☐ Visitar sites de desenhos animados que gosto de ver

☐ Visitar sites de comidas que gosto

2.3. Gostaste de jogar o jogo das Pringles?

Detestei ☐

Não gostei ☐

Gostei ☐

Adorei ☐

2.4. Achaste o jogo das Pringles...

☐ Fácil ☐ Difícil

2.5. Queres voltar a jogar o jogo das Pringles?

☐  Sim

☐  Não

Appendix 9: Experimental Groups' Second Questionnaire

3. Tu e a Alimentação

3.1. Gostas de batatas fritas?

Odeio ☐

Não gosto ☐

Gosto ☐

Adoro ☐

3.2. Se sim, qual destas gostas mais?

☐

☐

☐

3.3. Marca com um X o alimento que mais gostas:

☐

☐

☐

3.4. Qual destes produtos gostavas de pedir aos teus pais para comer? (escolhe um)

☐

☐

☐

3.5. Marca com um X o alimento que mais te apetece comer agora:

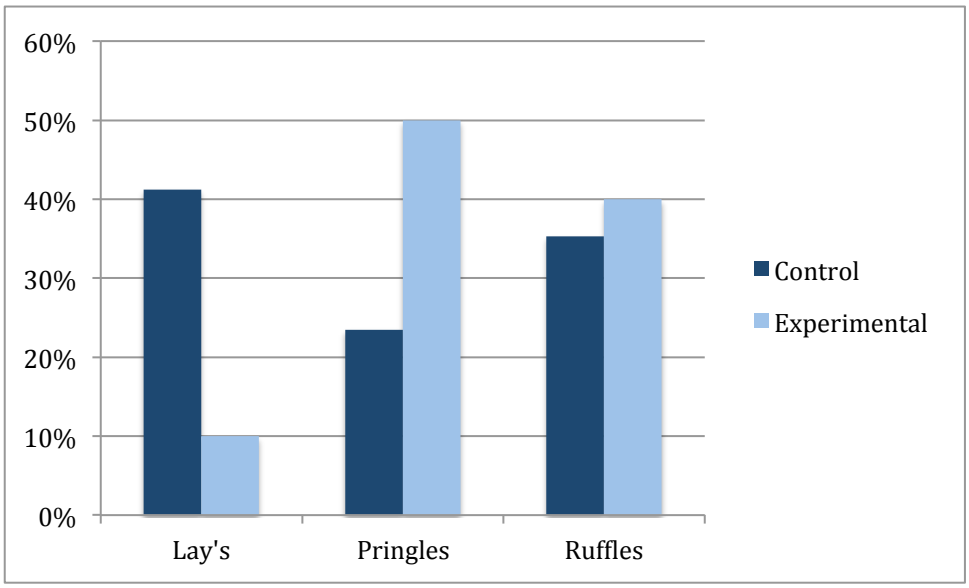
☐

☐

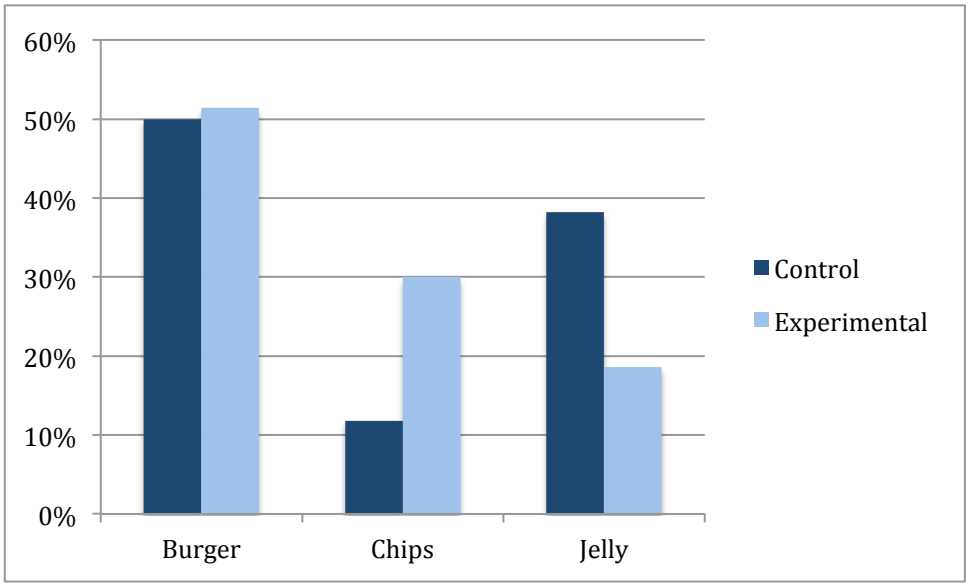
☐

Appendix 10: Short-Term Effects

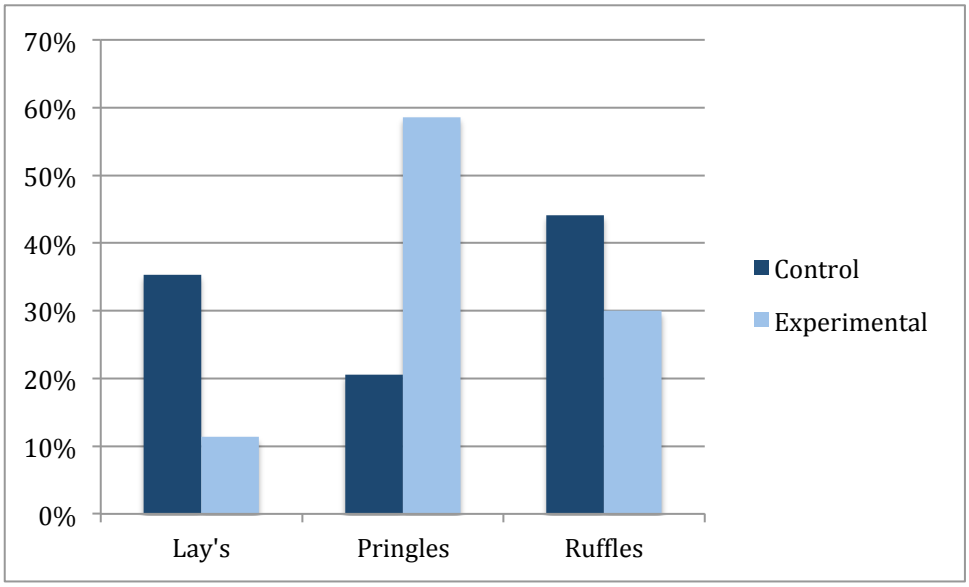
Graph 1: Brand Preferences



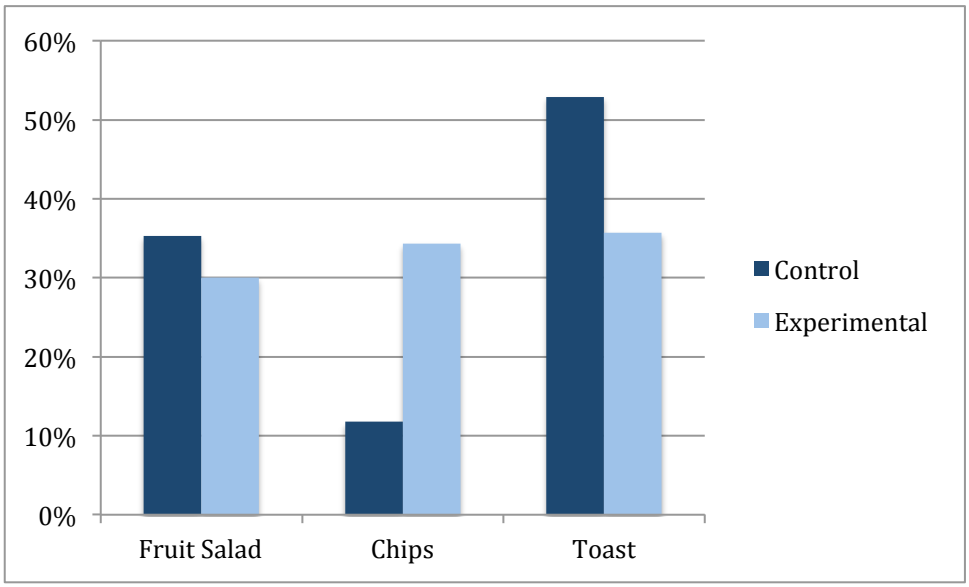
Graph 2: Product Preferences



Graph 3: Brand Selection

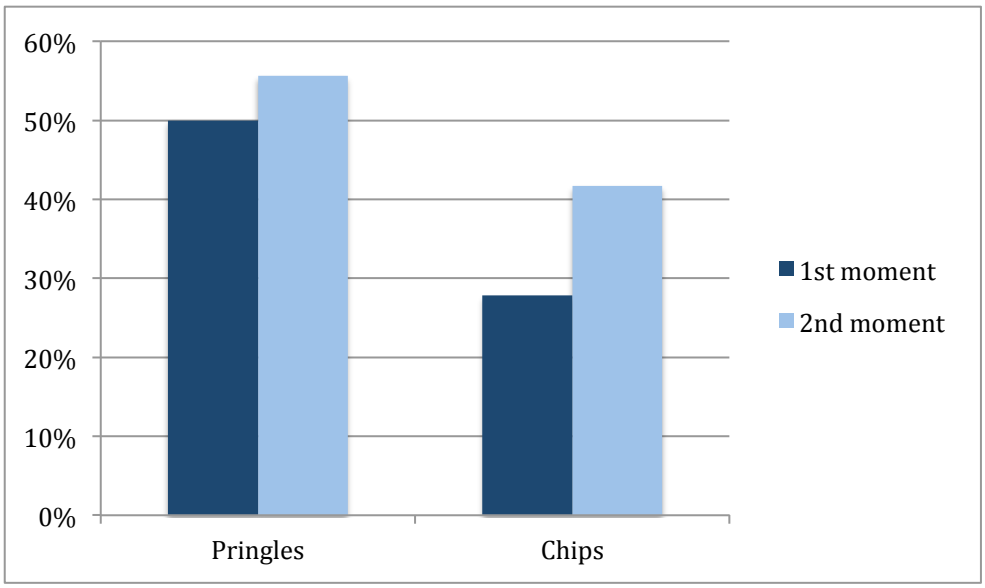


Graph 4: Product Selection

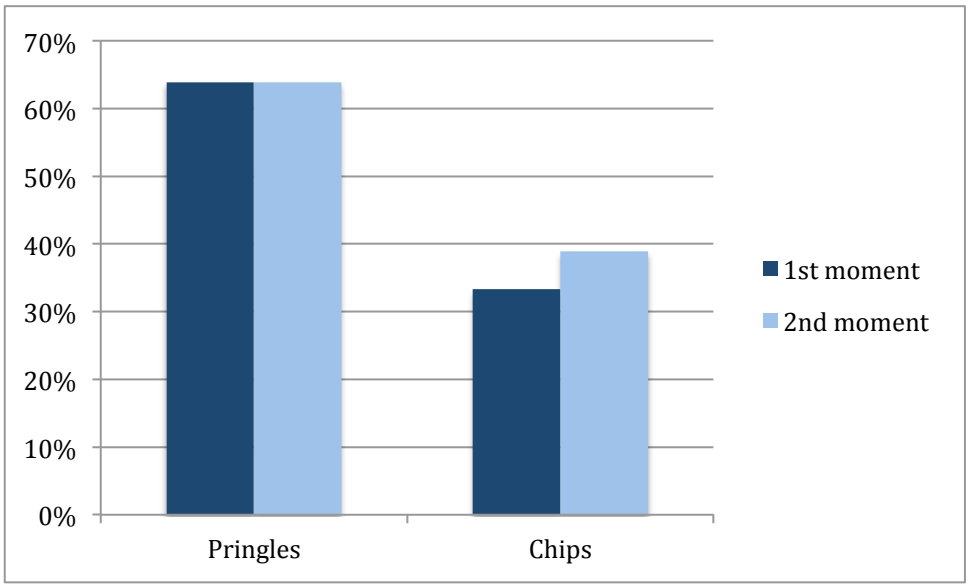


Appendix 11: Medium-Term Effects

Graph 5: Brand and Product Preferences

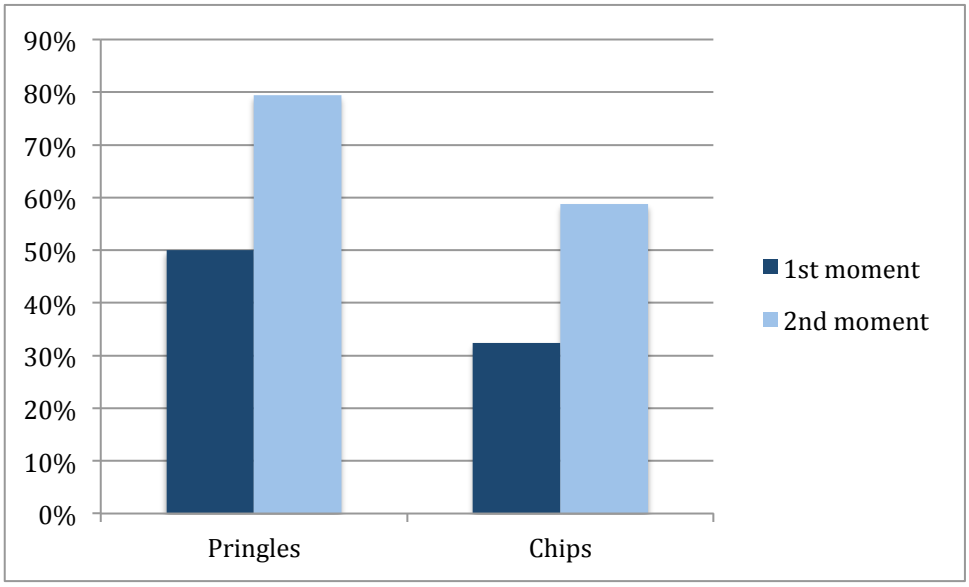


Graph 6: Brand and Product Selection



Appendix 12: Repeated Exposure

Graph 7: Brand and Product Preferences



Graph 8: Brand and Product Selection